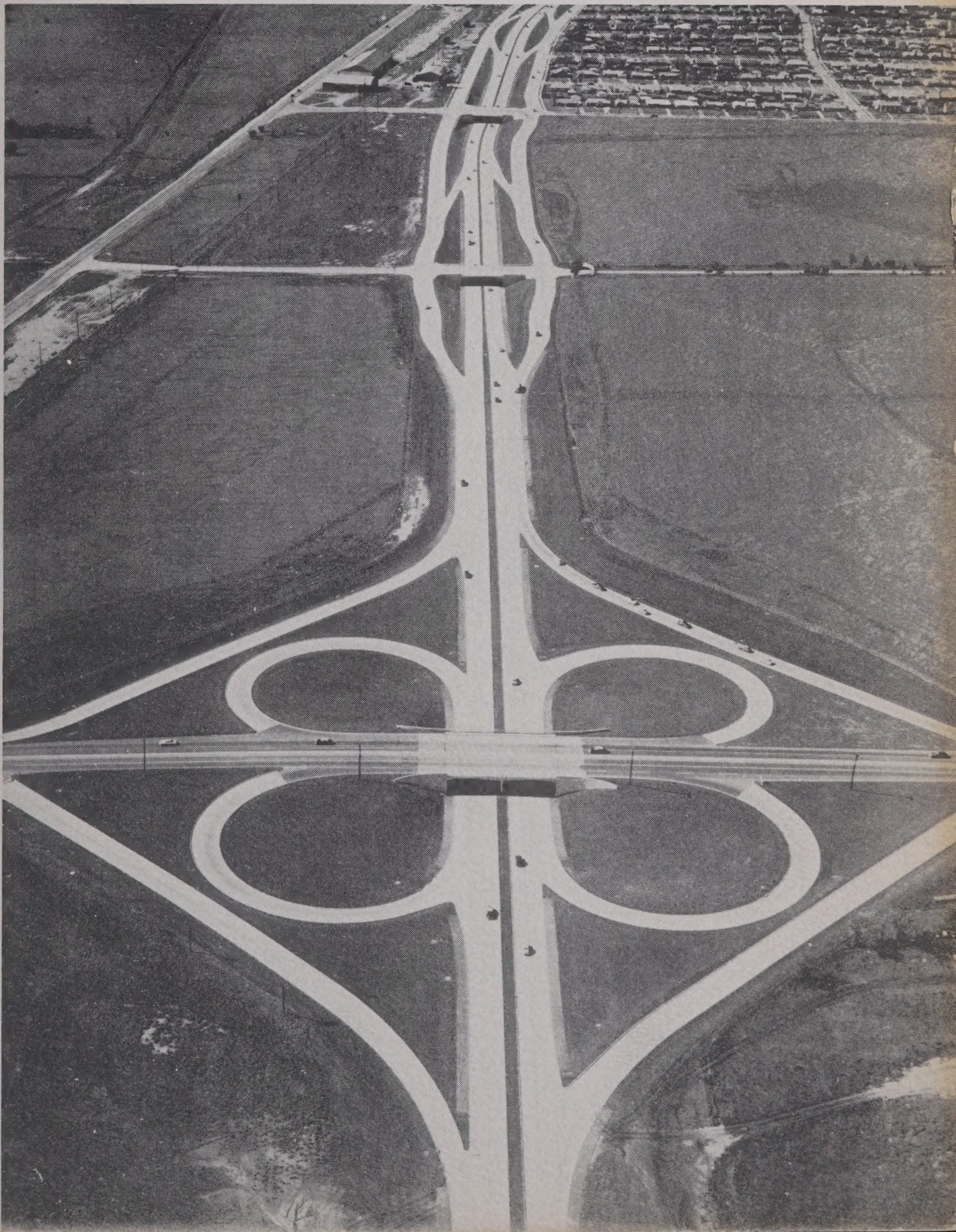
TEXAS HIGHWAY DEPARTMENT

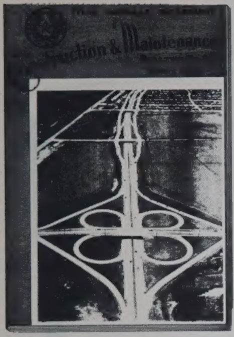
Construction & Maintenance

Bulletin No. 2

June, 1953



About the Cover . . .



This cloverleaf, at the junction of Loop 12 and U.S. 75 north of Dallas, provides an uninterrupted interchange of eastbound, northbound, southbound, and westbound traffic. It embodies the latest design principles for traffic interchanges of this type. Construction was completed and the project was opened to traffic in April, 1953.

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Construction and Maintenance Bulletin

The purpose of the *Construction & Maintenance Bulletin* is to furnish a medium for presenting practical information applicable to current highway problems. These conclusions and data are not necessarily endorsed by the Highway Department nor are they to be construed as instructions. Employees are invited and urged to submit suggestions and relate experiences which would benefit those engaged in the construction and maintenance of highways.

Photographic services are available and other assistance may be obtained, if desired, in preparing material for submission. All material and comments should be directed to the Chief Engineer, Construction and Maintenance, Austin 14, Texas.

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Maintenance Division	D- 3
Equipment & Procurement Division	D- 4
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COMPILED AND EDITED

Traffic Services Division, INFORMATION SECTION

REPRODUCED

Operations Division, REPRODUCTION SECTION

As We See It

Safe driving and courtesy go hand in hand. One of the principal ingredients of good public relations is the common "garden variety" of courtesy. All operators should be sold on the necessity for a definite and aggressive safety program which includes the utmost courtesy to other users of the highways.

Impress upon your operators that, when operating state equipment, their conduct at the wheel reflects upon the entire organization. A discourteous action on the part of any one of them can create an unfavorable reputation in your community and jeopardize the good will built up from many years of conscientious effort.

All operators should be reminded that courteous driving is safe driving and that the courteous treatments accorded to other drivers will not only benefit the organization through public approval but will safeguard their own lives and economic welfare as well.

Subgrade Attachment for Shoulder Widening

J.R. Long, Equipment Supervisor
District 25

We have made a subgrade attachment from an old motor grader moldboard in our district shop at very little cost.

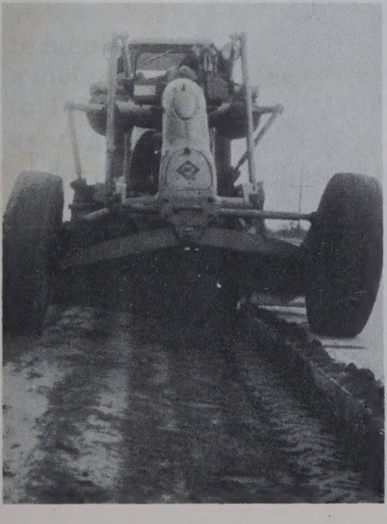
This attachment is used on a motor grader as shown for cutting subgrade. The subgrade can be cut from one to six feet in width, and from one to twelve inches in depth.

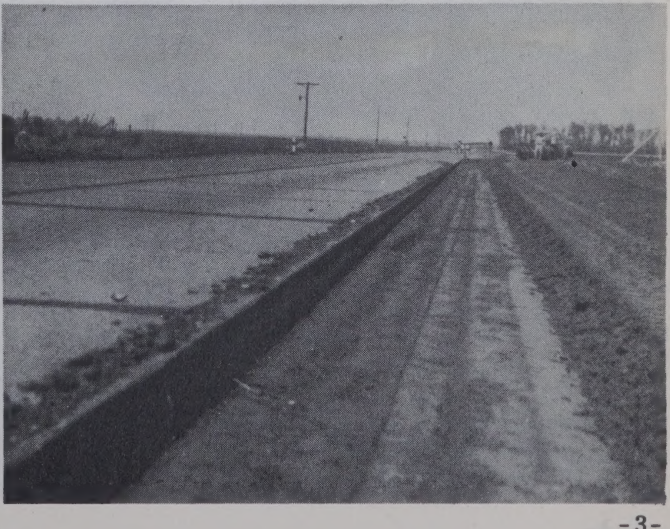
We find the attachment very practical, and it lowers the cost of cutting subgrade considerably. We can cut one mile of subgrade four feet wide and seven and one-half inches deep in approximately two hours, and we have cut as much as two miles in two and one-half hours.

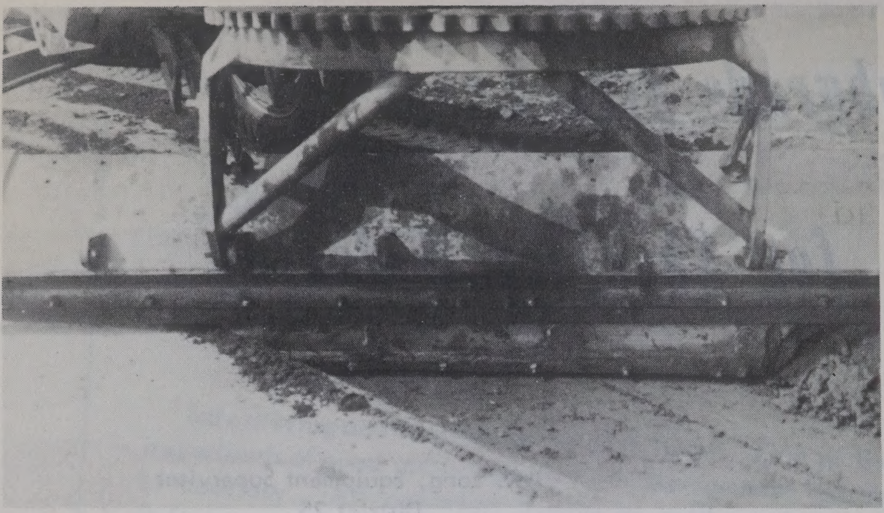
This operation does not disturb the shoulder outside of the desired width of the subgrade.

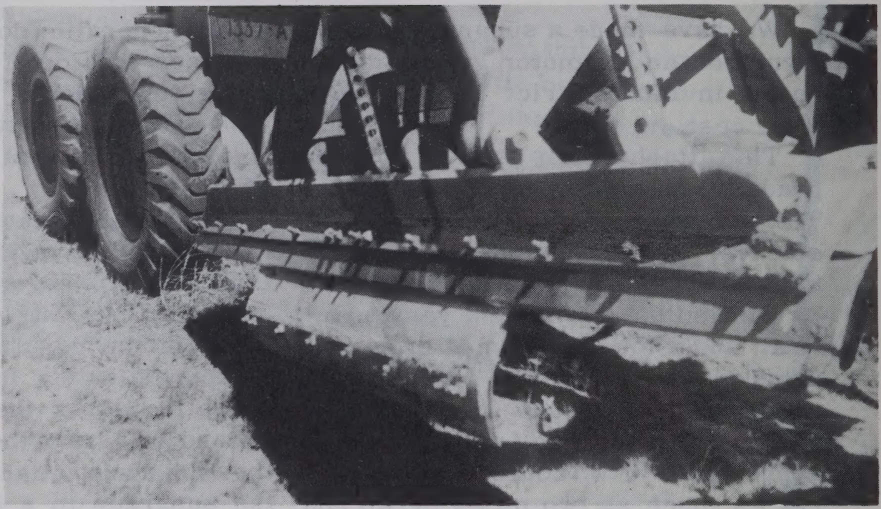
It takes about twenty minutes to bolt this attachment to the road grader moldboard.

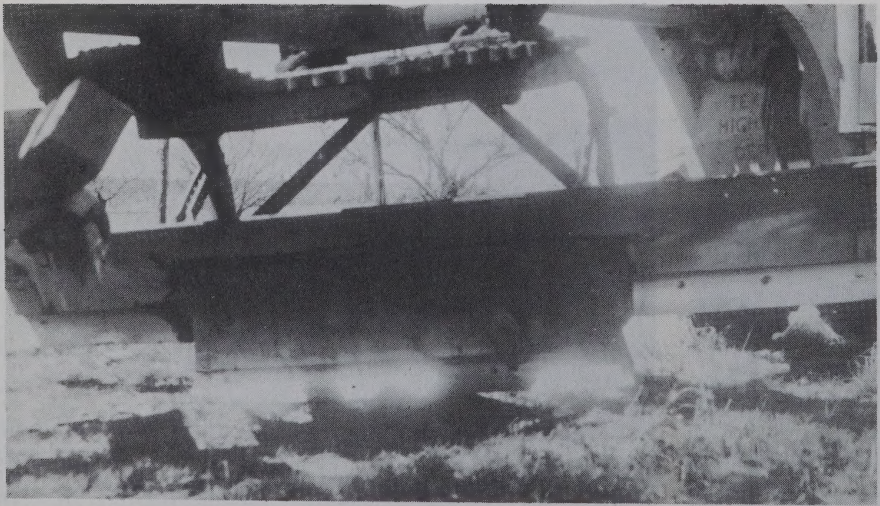
The shoulder should first be bladed to remove the vegetation, then scarified to a depth of six to eight inches. Following this, the loose dirt is pulled out with the regular blade to a depth of approximately four inches. This operation leaves the subgrade sloping toward the edge of the pavement. Then the subgrade attachment will finish the subgrade to a flat section and to the desired depth.



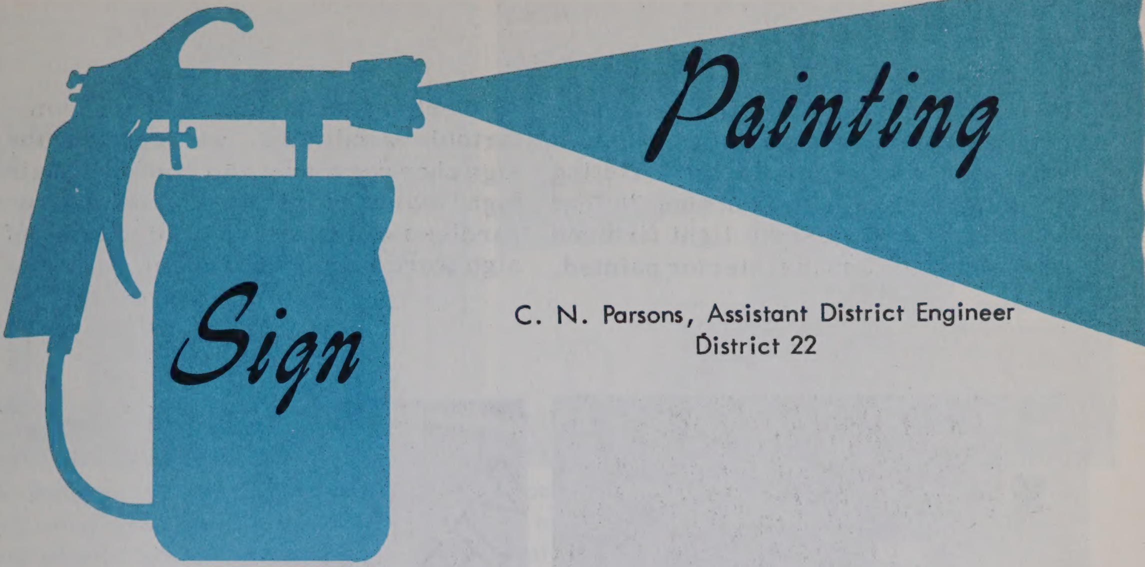








Sign Painting



C. N. Parsons, Assistant District Engineer
District 22

The construction and maintenance of signs to mark our highways for the motorist is a big business in District 22, as well as in every other Highway District in Texas. For the past several years there has been a steady increase in the number of signs required. At the end of 1948, there were 3,160 signs along the state-maintained highways in District 22. By the end of 1952, this number had increased to 5,570.

In our District Carpentry and Paint Shop, four employees, three sign painters and one carpenter are engaged full time in the construction and painting of new signs, renovating old signs, and constructing and painting barricades for maintenance forces. All phases of their work have increased in volume the last several years. In 1948 they were called upon to furnish an average of 141 new signs a month, and for the first two months in 1953 this figure had risen to an average of 295 signs per month.

In general, the methods utilized in our sign shop do not vary greatly from the methods used in other Districts; however, there are several practices and items of equipment that may not be common to all Districts which may be of interest to others. One trick that has been found to be most effective is the use of permanent magnets to hold the stencil to the face of the metal sign blank in lieu of tape or weights.

At one end of the paint shop the spray tunnel is located, equipped with exhaust fans. Overhead swing supports accommodate the larger metal signs, while a removable rack can be positioned in the booth to hold several smaller sign blanks.

A reflector bead spreader box modeled after the one in District 13, modified to accommodate larger type signs, is also a valuable piece of equipment in our shop. This machine will handle signs up to 3 1/2 by 9 feet.

A recent addition to the shop equipment is the stencil storage and cleaning table. Using this table, the stencils can be cleaned indoors and then conveniently stored in drawers which were constructed large enough to permit the larger stencils to be stored flat.

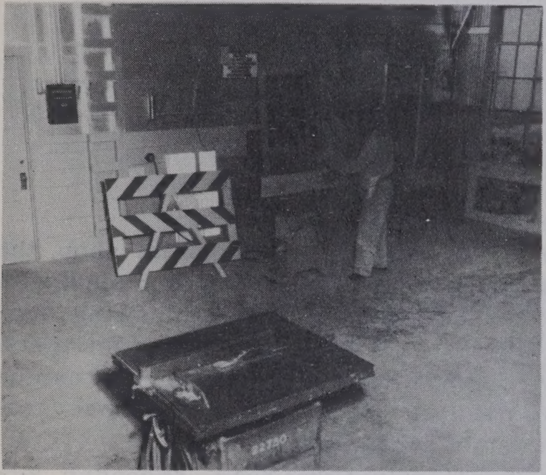
The sign racks for drying were designed in the District as was the stencil cleaning table mentioned above. There are eight of these racks in the sign shop with a capacity of 672 24-inch signs or 84 signs per rack.

The quality of work produced by our sign shop personnel is excellent, as is evidenced by several of the accompanying photographs. They have recently been provided with a spacious and well-lighted paint shop and now work under more comfortable and safer conditions.

To relieve the congested condition

in the old paint shop created by the increased volume of sign work, a 32-foot extension was added to the existing building, providing a paint shop 30 feet by 66 feet. Fluorescent light fixtures were installed and the interior painted.

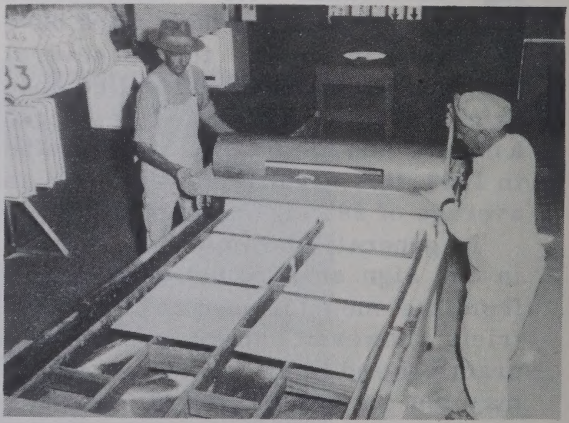
Working under these more comfortable conditions, we feel that the sign shop personnel can continue their high standard of workmanship regardless of the increase in volume of sign work required of them.



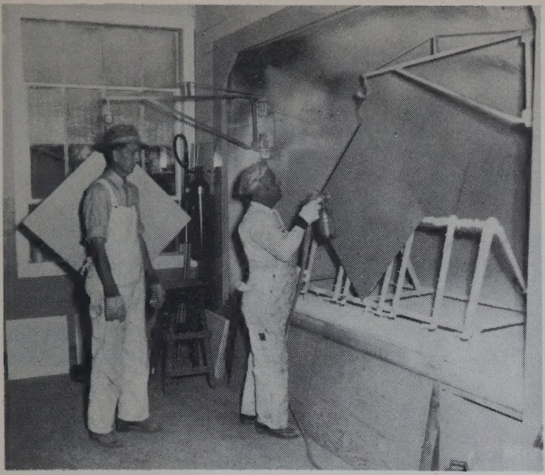
Carpentry shop, showing Santana Hernandez, Operator, using the joiner in preliminary stage of sign construction. Doors on right and left open into paint shop.

Louis Salvatierra stenciling sign.

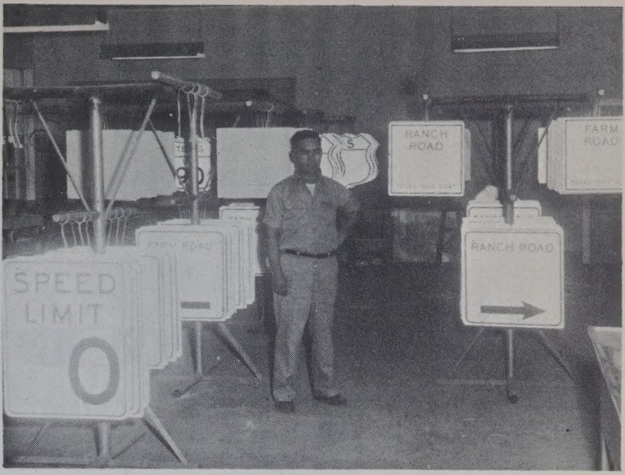
Tying in letters in the layout room.



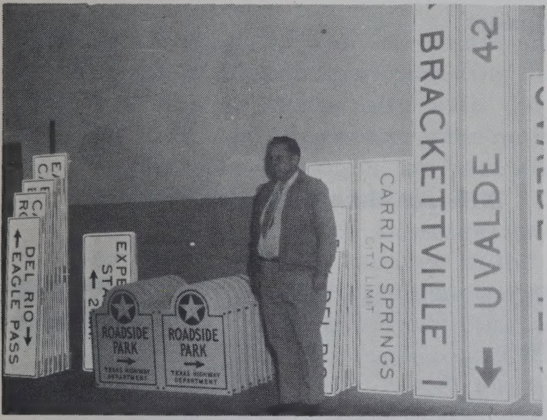
Shop-made machine for beading signs. Spreader box can accommodate signs up to 3 1/2 by 9 feet in size. W.M. Burk is at left, and E.R. Babb at right.



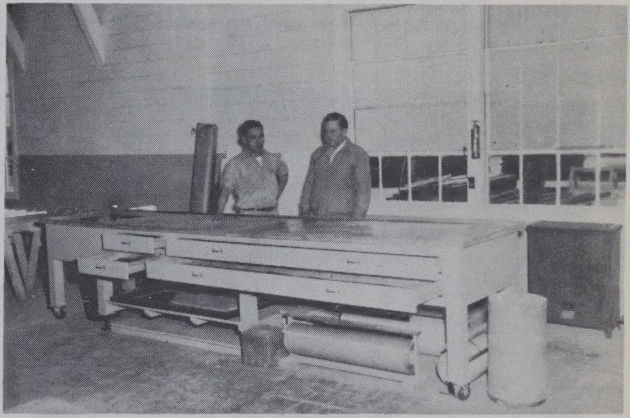
E. R. Babb sprays metal sign blank in tunnel, using swinging overhead hangers. W. R. Burk stands at left. Stationary racks can be seen.



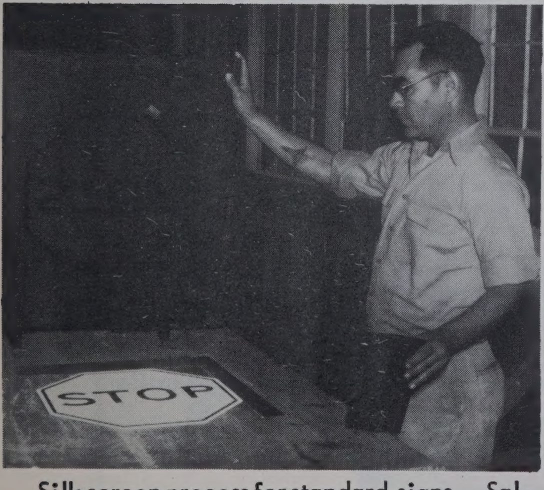
Each of these shop-built drying racks can hold a maximum of 84 of the 24-inch signs. Louis Salvatierra stands in front.



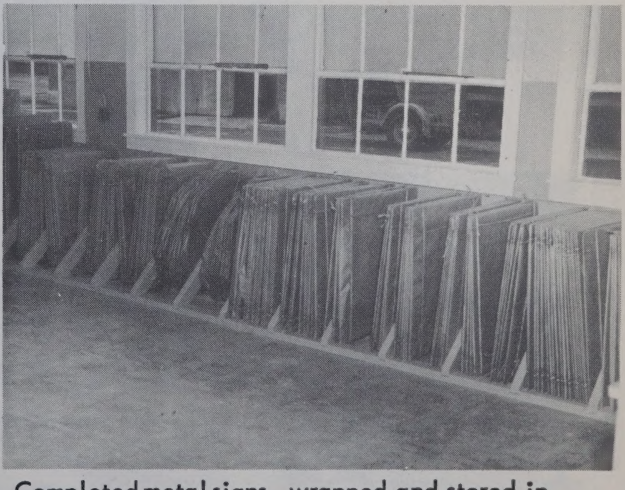
Drying area for large wooden signs. Charles Miller Jr. stands in front of signs.



Portable stencil storage and cleaning table. Salvatierra and Miller are standing by.



Silk screen process for standard signs. Salvatierra is pictured.

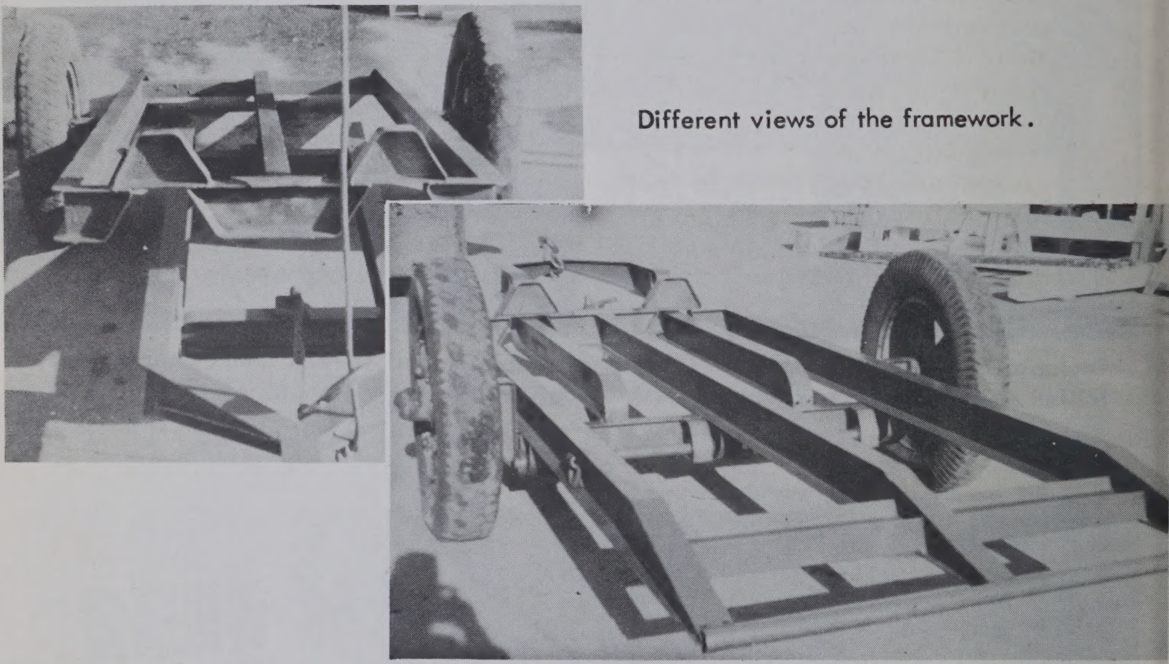


Completed metal signs, wrapped and stored in rack.

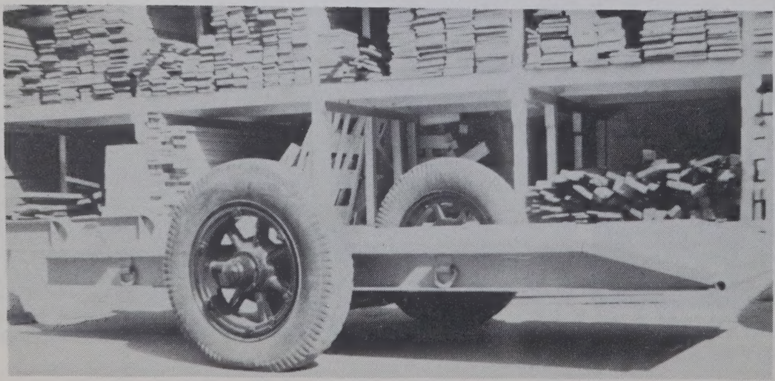
"TILT-BED" TRAILER

J.D. Willson, Senior Maintenance Superintendent
District 5

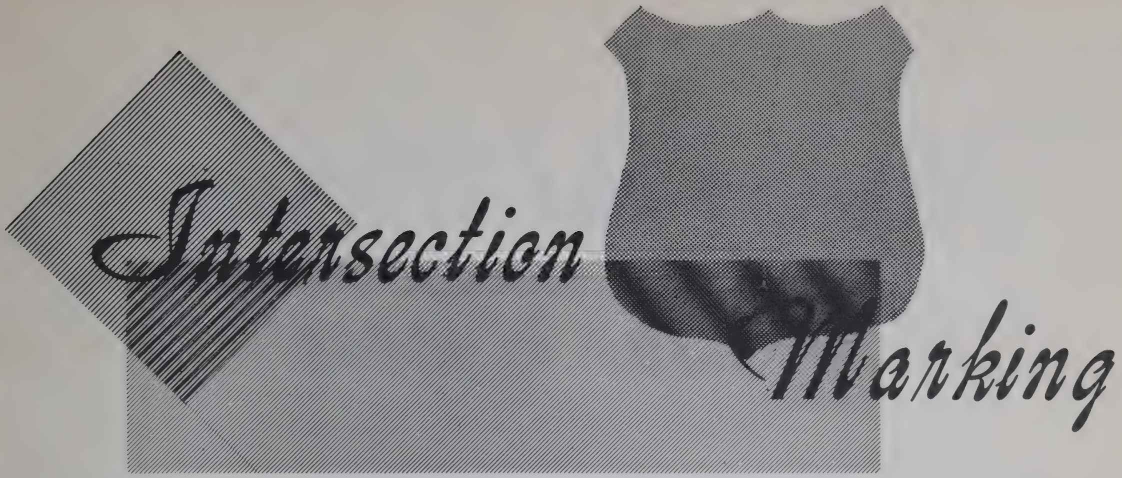
Recently, we built a very handy and serviceable trailer out of the front wheels of an old liberty truck and some salvaged I-beams. This is a "tilt-bed" trailer and is very handy for moving small pieces of equipment.



Different views of the framework.



Completed trailer.



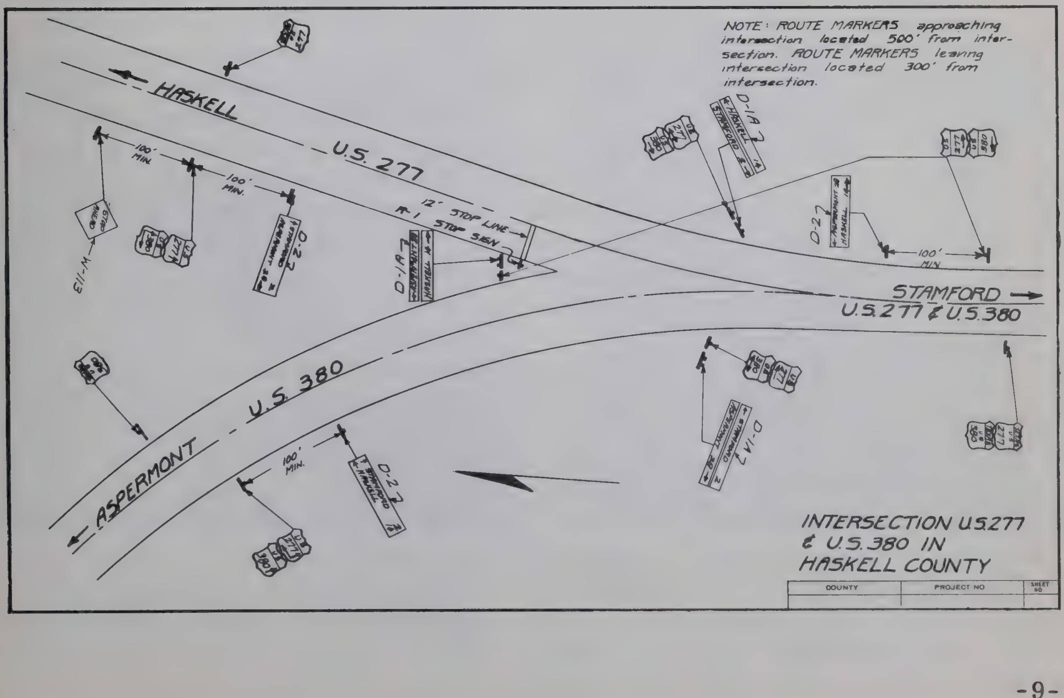
Intersection Marking

E.W. Couch, Senior Maintenance Superintendent

District 8

In order to aid our maintenance foremen in properly marking intersections in conformity with the Sign Manual, and in preparing the material request for the signs, we have worked out the following procedure.

A plan for each intersection (see sample print) is prepared in the District Office showing signs and pertinent data. A print of this plan is given the maintenance foreman who checks it at the site and then prepares his material request from the data shown. The maintenance foreman then forwards the print and material request to the District Paint Shop where the plan is used by the Paint Shop personnel to properly prepare the signs. Finally, the plan is used in the field to check marking after installation, and is then made a part of a permanent file maintained by the District Office.



Pruning and Watering Native Trees

Ben J. Lednicky, Senior Landscape Adviser

It is not the policy of the Highway Department to water native trees on our rights of way, and I am not advocating this policy; but if we could apply a tremendous amount of water to them in a roundabout manner, then I think that we should avail ourselves of the opportunity. We all realize that, even under the best of conditions, a tree on the right of way must have a difficult time securing the tremendous amount of water it requires every day. The tree shown in the first photograph would require from 50 to 100 gallons of water every day during the summer months. We are now in the third year of an extended drought and I am at a loss to know where these trees keep securing the large amounts of water necessary to keep them alive.

A small live oak, as ordinarily found along our R. O. W. is shown in picture 1. The low-hanging limbs interfere with mowing operations and give the tree a ragged appearance, but most concernedly, waste precious water that cannot be spared.

Picture 2 shows the size of only one superfluous limb that was removed. (The one directly in front of Weldon B. Thornton, Brady, in Picture 1). This one limb weighed sixteen and one-half pounds and had a water content of 28.7 per cent. It requires 112 gallons of water to manufacture one pound of dry material. This, translated into simple English, means that this particular tree had to ferret out 1,318 gallons of water to manufacture this one limb that now has been removed and will be burned.

In Picture 3, the tree has been properly pruned and all superfluous branches have been removed. Note the pile of pruned material. These trimmings, weighed on a scale, totaled 113 pounds. Translated into simple English again this means that a total of 9,136 gallons of water had been absorbed by the roots of the tree by the osmosis process, transported up and down the tree through the conducting system. Then the leaves manufactured all the raw material by the mystifying process of photosynthesis into tree material — all of this going on behind the scene of man. Late enough man discovers that pruning of the tree is in order, never being conscious of what miraculous happenings had taken place which were not obvious to the naked eye.

A common mistake once the tree has been pruned is to forget it until such time when another heavy pruning job is necessary. After a tree has been properly pruned, it should be given a "once over lightly" every year to remove all branches growing in the wrong direction and to correct all defects that occurred during the year. So let us assist Mother Nature with the watering problem by judicious and timely pruning, and by guiding the limbs in the proper direction so that every ounce of water the tree takes up will be placed in the ultimate structure of the tree rather than into superfluous branches that sooner or later will be pruned and destroyed.

How much is 9,000 gallons of water? The stream of water from the hose held in Picture 4 by John E. Black, Senior Maintenance Foreman at Brady, under a constant pressure of 50 pounds, would run approximately that much water if allowed to run for 48 hours.

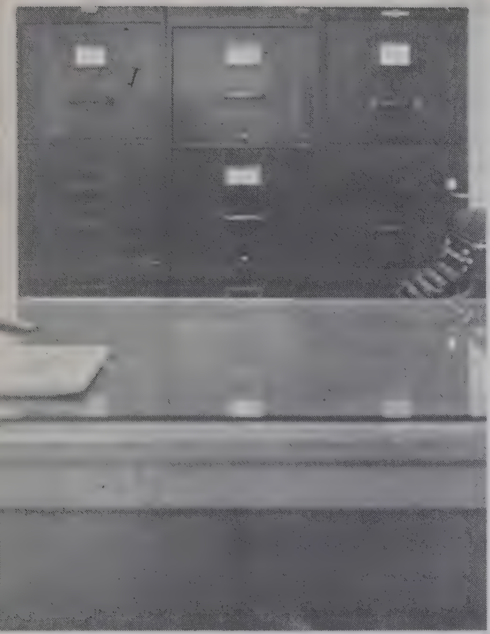
Cost of trimming this tree was $3.30, and required 29 minutes.

Before: Ordinary live oak found along our right of way. U.S. 377, McCulloch County.

This one limb required 1,318 gallons of water to be manufactured.

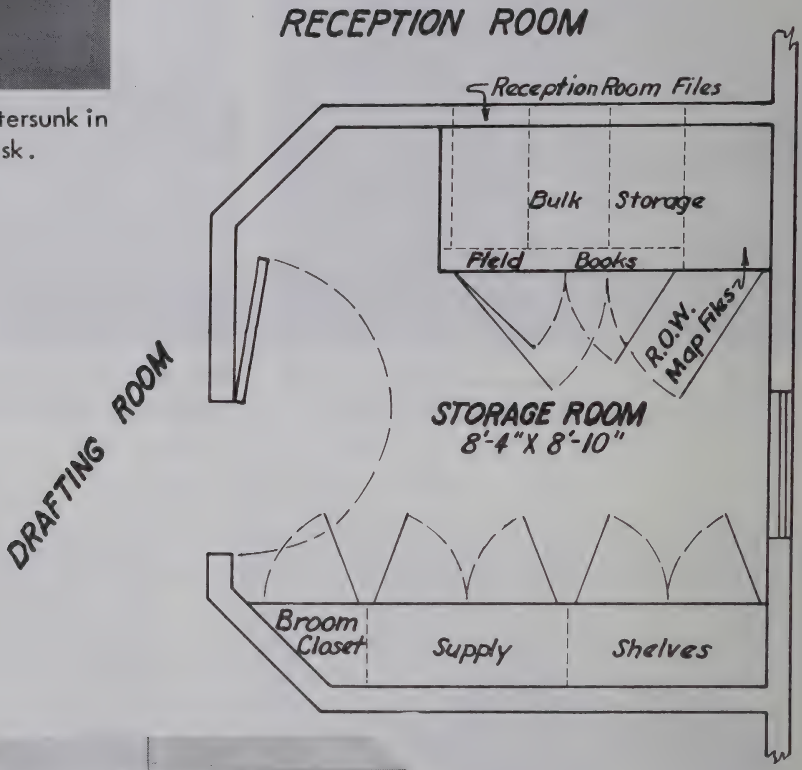
After: The pile of trimmings represents 9,136 gallons of water that this tree had to process to manufacture this superfluous growth.

How much is 9,000 gallons of water?



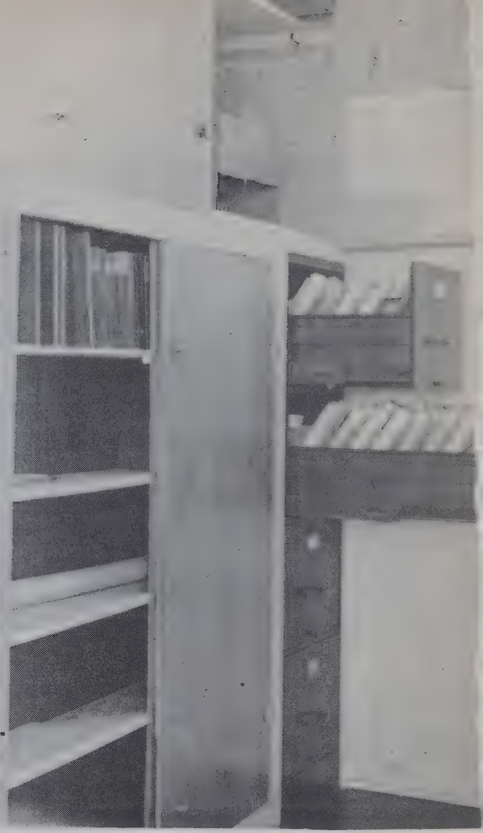
Reception room files countersunk in wall behind reception desk.

Bulk storage (top), field books and R.O.W. maps (bottom).



Open view of field book shelves in storage room in rear of reception room files.

R.O.W. map files (open).



Note index to R.O.W. maps on overhead door.

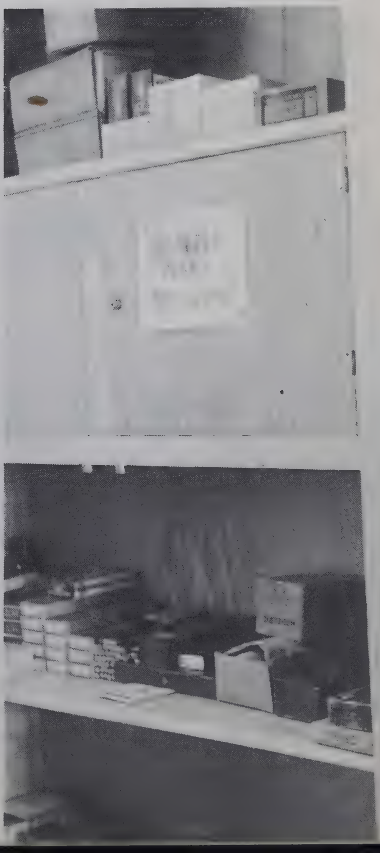
FILE ARRANGEMENT

JASPER RESIDENCY OFFICE

E. D. Parmer, Assistant District Engineer
District 20

Closed view of supply cabinet.

Open view of supply shelves.



Attending the plan preparation school were, left to right, G.A. Nicholas, W.B. Steed, E.W. Estes, L.P. Landgraf, B.J. Worden, R.C. McCulley, M.E. Loyd, H.T. Smith, and J.T. Middleton, front row. Back row, J.D. Reagan Jr., G.W. Reid, T.M. McNamara, C.W. Pressley, G.P. Berthelot Jr., D.D. Peters, H.P.R. Smith, A.J. Reetz, R.W. Batey, T.D. Jones, L.C. Cole, and S.W. Copp. W.A. Potter, not pictured, attended two days.

DISTRICT 20 SCHOOL ON PLAN PREPARATION

E. D. Parmer, Assistant District Engineer

A school on plan preparation was held at the District Headquarters in Beaumont April 20 to April 24, inclusive. The school was conducted by J. D. Reagan Jr., Senior Designing Engineer, with the assistance of H.E. Furry, Resident Engineer, and Lester P. Landgraf, Resident Designer.

W. E. Simmons, District Engineer, welcomed the group, which was comprised of representatives of each residency in the District.

A number of the men who attended the school were requested to prepare discussions on the various subjects as presented in Books I through V on Plan Preparation. Films on geological processes were shown during the course.

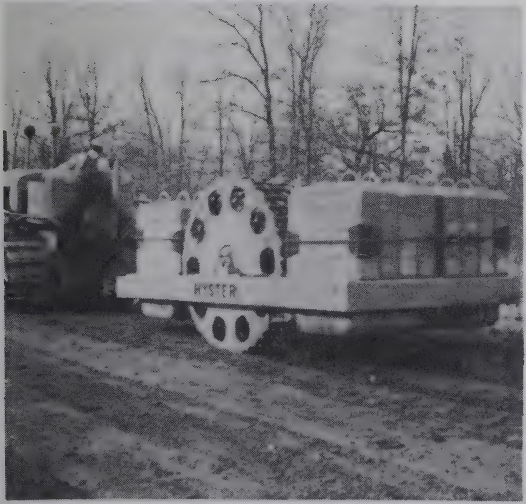
It is believed that an unusual interest was created in the school. This was evidenced by the enthusiastic question and answer sessions which followed each discussion.

GRID ROLLER USED ON
IRON ORE BASE

T.A. McBride, Maintenance Superintendent
District 10

We recently purchased a Hyster Grid Roller which we have found to be very valuable for processing iron ore base material containing a high percentage of large stones. This roller weighs 12,000 pounds as shipped from the factory. This weight is increased to 30,000 pounds by the addition of sixteen concrete blocks weighing 1,125 pounds each, as shown in Picture 1.

The use of this roller allows us to use material which could not be used otherwise without crushing. The roller will break almost any boulders it will clear. Overly large boulders will hang under the counterweights and be dragged in front of the roller. Stones this large must be broken with a jack hammer or sledge. Adequate power, Caterpillar D-7 or Allis-Chalmers HD-10, is required to pull this roller.



Hyster Grid Roller.

Note high percentage of boulders in material after windrowing with bulldozer for loading with a shovel.

The material is dumped in the center of the road.

Spreading is rough on the maintainers.

The first pass cracks the larger stones.

The material from both sides is windrowed in the center.

The completed base, finished out with a Pneumatic Roller, is ready for the prime coat.

Oversize material is windrowed along the edges.

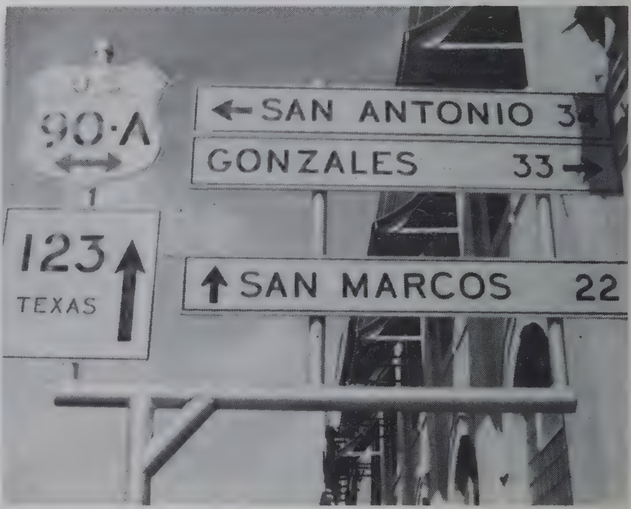
When the portion of the base between the windrows has set up enough to provide a firm surface against which to crush the stones, the windrows are spread out and the initial pass is made with the grid roller.

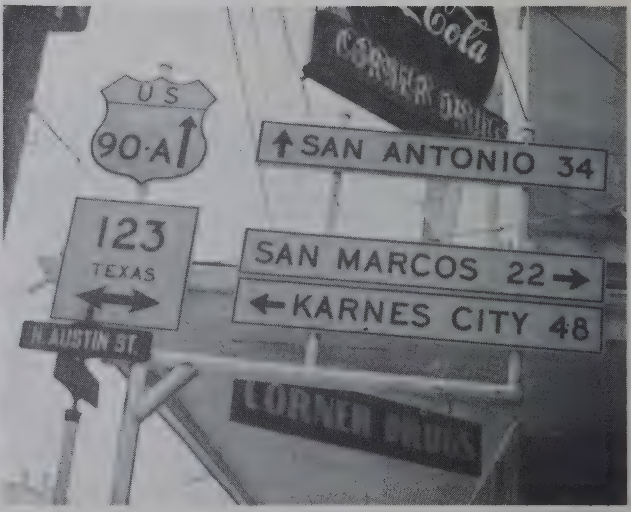
This material was flattened out and rolling continued.

Completed.

WELDED BRACKETS

These welded sign brackets are used by J. K. Jones, Senior Maintenance Foreman, Guadalupe County, at the intersection of U. S. 90A and S. H. 123 in Seguin. Pipe post had to be set near a corner, and sign supports projected to one side to allow pedestrians to walk under signs. Jones feels that his sign brackets look attractive and businesslike, are strong and can be constructed at an economical cost.





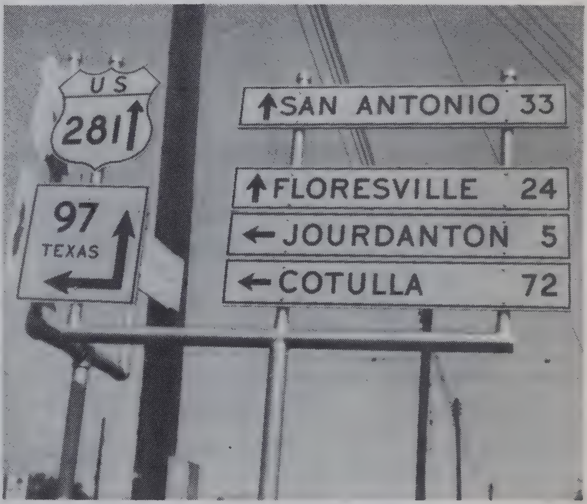
FOR CITY SIGNS

Claude Atkinson, Senior Maintenance Foreman, Atascosa County, has tried welded pipe brackets for city signs with collars welded onto horizontal bar and found it to have some worth-while advantages.

All welded construction was used, eliminating all fittings except the collars welded onto the horizontal support, to accommodate the vertical pipe for mounting the signs.

Atkinson believes he has saved money on fittings and his welded joints will not break off as easily as threaded pipe if struck by a vehicle. Also, pipes may be unscrewed and extensions added if necessary.

This bracket for sign mounting is fabricated by welding threaded collars to the horizontal member, and holes are being drilled for sign bolts.

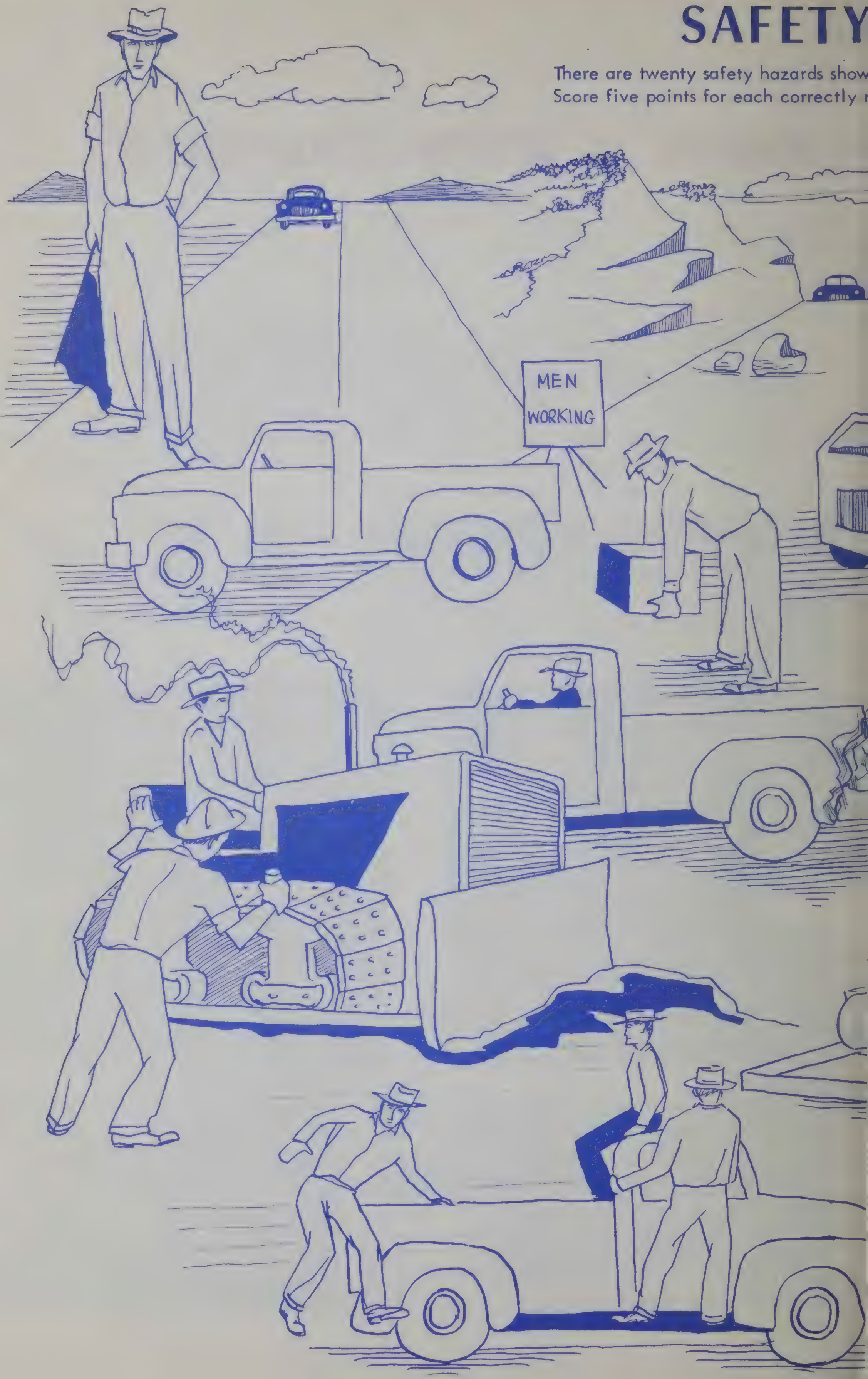


This assembly in place presents a pleasing appearance and Claude Atkinson, Senior Maintenance Foreman, reports that the welded joints are cheaper than fittings.

Alton Vordenbaum, Maintenance Superintendent
District 15

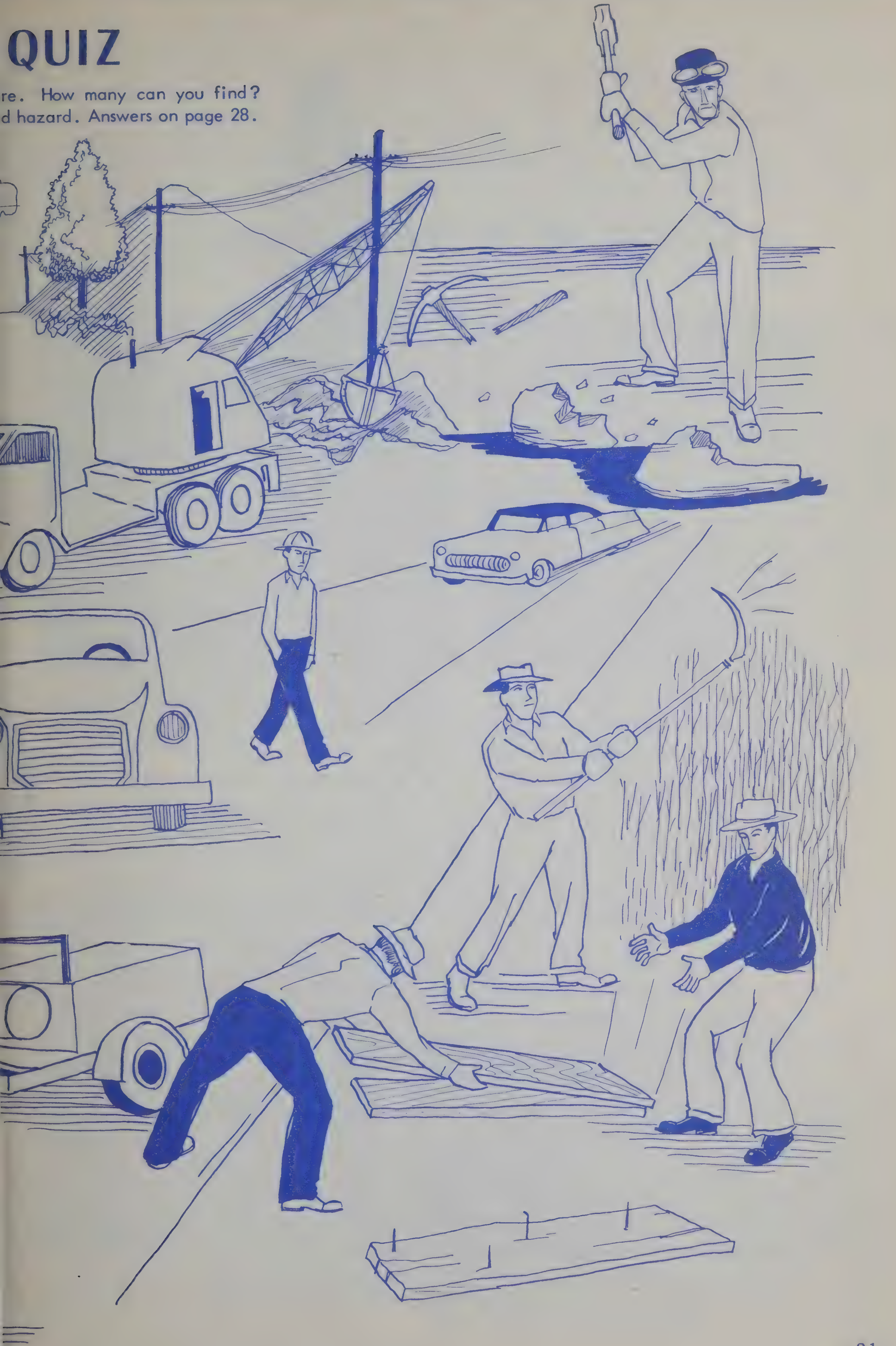
SAFETY

There are twenty safety hazards show
Score five points for each correctly



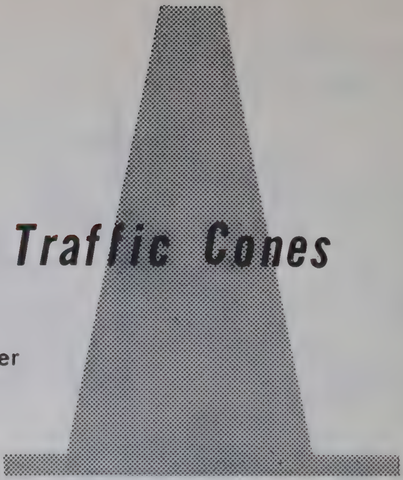
QUIZ

re. How many can you find?
d hazard. Answers on page 28.



SAFETY

Through Use of Traffic Cones



L.E. Morris, Assistant District Engineer
District 3

In carrying out daily maintenance operations which require our crews to work on the paved surface, it is necessary for us to use all reasonable means to protect our workmen and to inform the traveling public that there are danger areas which they must drive through that require special consideration on their part.

To cause the drivers of vehicles passing through a work zone to become conscious of impending danger for themselves and for our workmen will accomplish much toward the desired effect. We try to put this over to them through written messages such as Slow, Men Working, and 30 M.P.H., placed in advance of our work area in the form of signs. We hope that the approaching drivers will read them and abide by the instructions thereon. Of course, these advance warning signs are all necessary and must be used in practically all cases. In addition to this, there is a method of delineating a traffic lane through our work areas by the use of rubber cones which we believe to be about as important as the signs.

Our workmen feel that by proper placement of these cones, a work area can be isolated and made safe for their work on the paved surface. The cones should be set to channelize traffic in the proper lane to bypass the work area. If this is done, traffic seems to pass through the work area in an orderly manner, and the mechanics of the channelization seem to have a psychological effect, causing the traveling public to subconsciously sense the danger that an accident could happen to them in this particular area. Certainly, this is a desirable attitude on the part of the passing motorist because it is not likely that a driver in that frame of mind will become negligent or reckless.

If the advance warning signs are not observed by the approaching motorist, the channelization through use of the cones is a positive and definite indication that there is an area ahead through which he cannot drive, and at the same time there is an outlined path to follow in making the necessary detour. Should the driver not be mentally alerted by the appearance of the physical setup, then the noise of knocking down the first or second cone would awaken him in time to avoid a serious accident.

The sketch shows the general idea of isolating a work area by use of cones. The advance warning signs are not shown, nor is the use of flagmen shown. For light traffic and good visibility, probably no flagman is necessary. For moderate traffic, one flagman should be used. For heavy traffic, two flagmen should be used.

These pictures and comments are not offered in the light that they are without fault in every particular. We do feel that the general scheme comes nearer to giving us the protection that we want while working on the pavement than has any other system we have used.

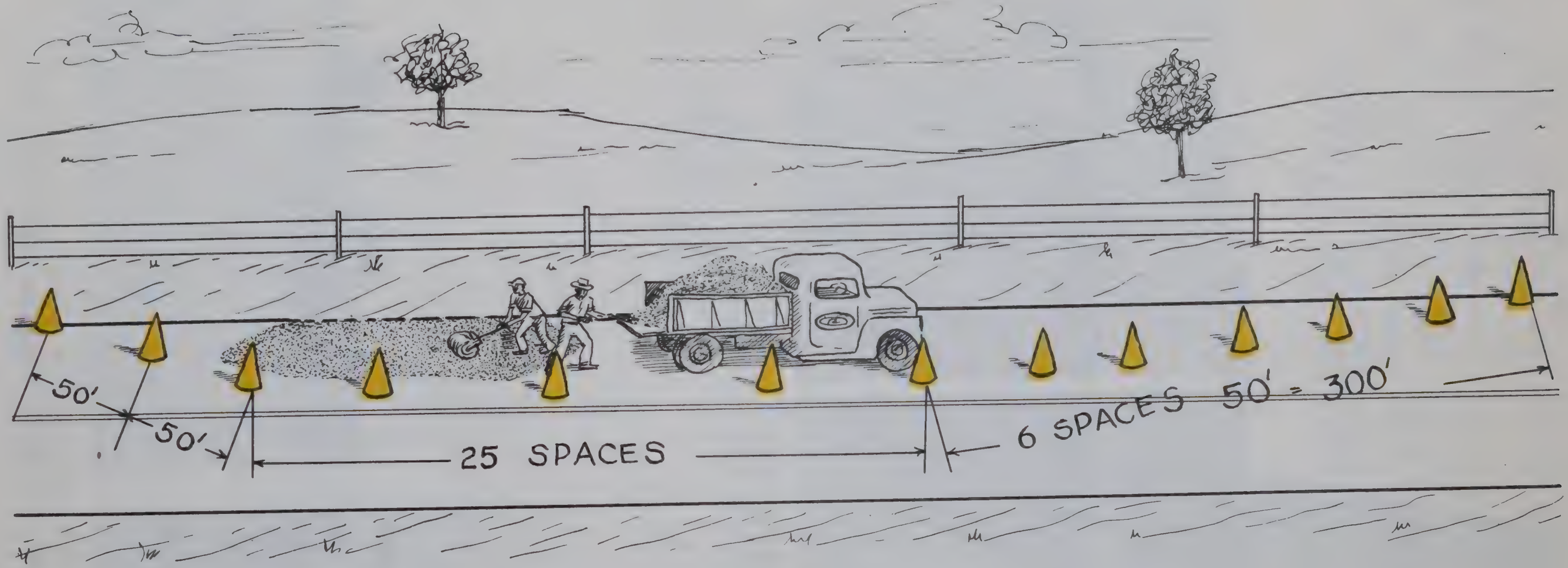
We do not believe that we are being overzealous in our pursuit of safety as we have had three fatal accidents in this District during the past three years, and two of them might have been prevented had we been using the rubber cones at the time of the accidents.

Motorists' general view at first advisory speed sign. The next sign is a "Men Working" sign.

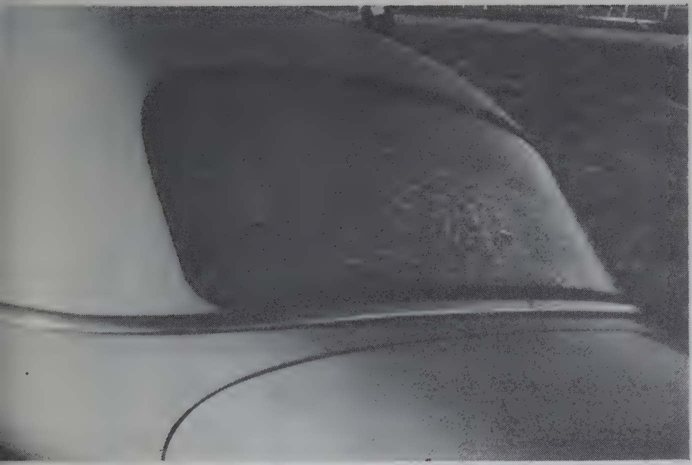
Details of setup as seen at the beginning of channelization. To further advise the motorist, a large "Slow" sign with a directional arrow is placed at the start of channelization.

The work area, which, in general, should be kept as short as possible.

General view of work area as seen by motorists approaching in the opposite traffic lane.



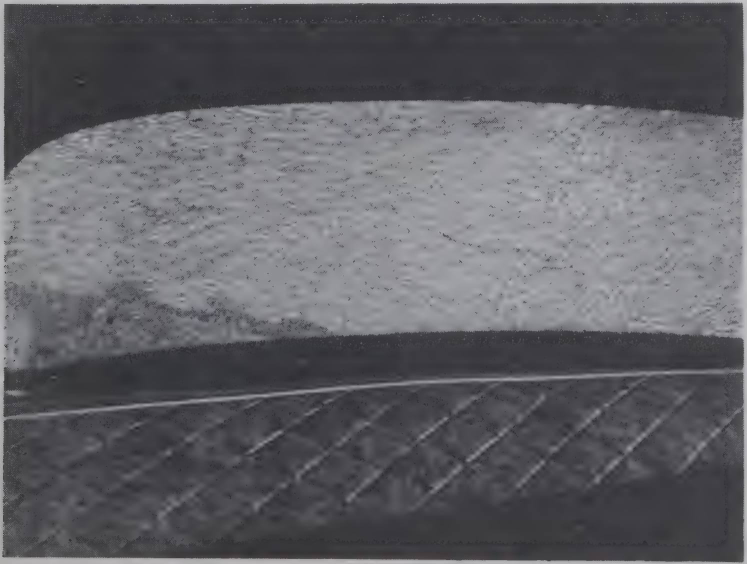
HOW TO USE TRAFFIC CONES WHEN PATCHING



What Happened?

We still don't know what caused this glass to shatter. At about 6 P. M. on February 27, this 1950 Chevrolet was moving northwest on State 71 about two miles southeast of Smithville. Temperature was about seventy degrees, the sun was shining, and a moderate southwest wind was blowing. As the car, moving about 55 m. p. h., was passing a van-type truck a sharp "pop" was heard. The glass, which was completely shattered, was carefully examined but no evidence of a blow could be found. There was no chipped or displaced glass - just the jigsaw puzzle cracks from edge to edge.

The repairman who replaced the glass stated that curved rear windows are made of tempered "bent" glass which sometimes "explode" as happened here, but he could not explain the cause. Unusual air pressure, focused sunlight, or high frequency vibrations might have been factors.



CUMULATIVE TOTAL OF CENTER ST

AS OF AP

DISTRICT NUMBER	PAINT STRIPE	ASPHALT STRIPE	TOTAL COST	GALLONS OF PAINT USED PER MILE	PAINT STRIPE TOTAL MILEAGE
1	6,466.27	5,878.42	12,344.69	15.50	62.73
2	23,857.71	9,736.56	33,594.27	19.84	219.45
3	12,485.41	19,658.22	32,143.63	14.35	117.34
4	9,297.80	12,264.14	21,561.94	14.68	107.70
5	4,887.25	18,882.68	23,769.93	16.42	53.29
6	13,789.82	17,534.86	31,324.68	12.42	170.90
7	11,605.00	16,219.00	27,824.00	17.60	101.54
8	24,296.73	19,131.26	43,427.99	17.60	249.82
9	11,162.27	17,222.69	28,384.96	15.75	98.12
10	16,922.92	8,371.10	25,294.02	16.57	207.72
11	12,097.90	14,586.96	26,684.86	18.55	132.29
12	10,172.05	11,573.26	21,745.31	18.96	118.14
13	7,127.75	13,620.39	20,748.14	15.89	68.45
14	20,663.34	4,172.52	24,835.86	16.30	242.00
15	17,892.75	19,212.79	37,105.54	17.31	169.30
16	9,100.36	11,439.72	20,540.08	17.00	68.00
17	12,420.26		12,420.26	19.00	134.00
18	18,504.84	15,774.57	34,279.41	13.86	255.44
19	14,305.45	12,670.18	26,975.63	17.27	172.08
20	19,389.11	16,869.02	36,258.13	25.00	150.70
21	2,918.84	15,893.63	18,812.47	17.60	24.08
22	4,738.42	6,868.76	11,607.18	18.12	47.52
23	8,278.22	10,933.79	19,212.01	17.70	95.70
24	5,675.63	14,694.48	20,370.11	17.17	43.40
25	8,226.76	11,369.62	19,596.38	21.00	59.80
	306,282.86	324,578.62	630,861.48		3,169.51

No work performed in Districts 2, 4, 5, 7 and 17.
District 25 did not submit a report for April.

PE WORK PERFORMED BY DISTRICT

30, 1953

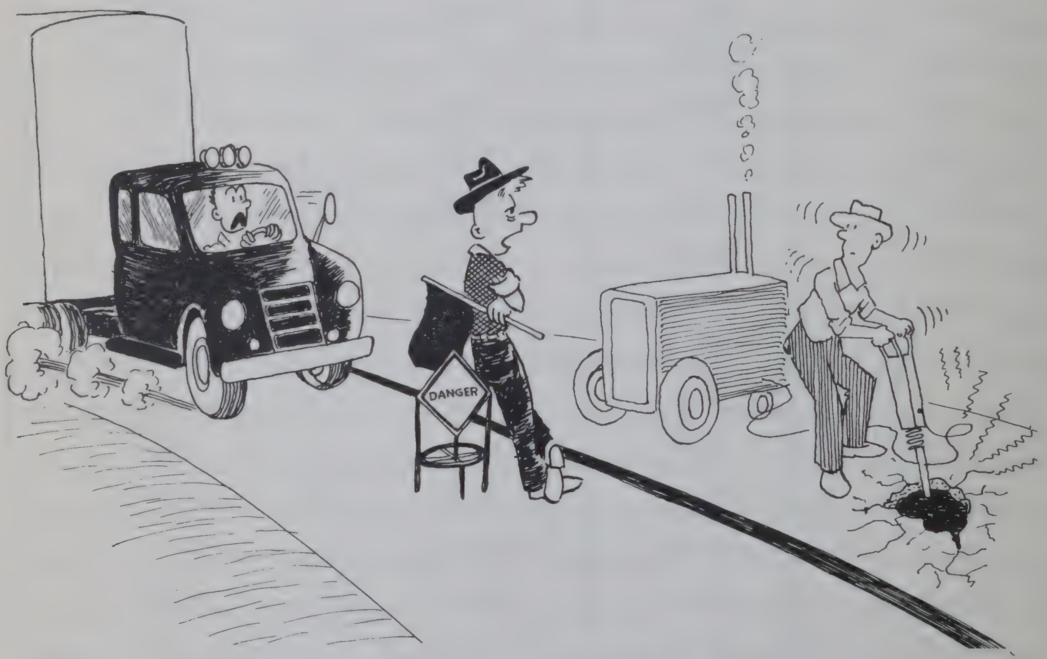
ASPHALT STRIPE TOTAL MILEAGE	TOTAL MILEAGE	PAINT STRIPE AVERAGE COST PER MILE	ASPHALT STRIPE AVERAGE COST PER MILE
96.50	159.23	103.08	60.92
329.01	548.46	108.71	29.59
343.14	460.48	106.40	57.28
208.40	316.10	86.33	58.85
324.40	377.69	91.71	58.21
235.60	406.50	80.69	74.43
285.00	386.54	115.00	57.00
312.30	562.12	92.38	61.26
390.55	488.67	113.77	44.10
201.20	408.92	81.47	41.61
327.80	460.09	91.45	44.50
167.03	285.17	86.09	69.28
283.04	351.49	104.13	48.12
118.64	360.64	85.38	35.17
298.30	467.60	105.69	64.41
211.00	279.00	133.83	54.22
	134.00	92.69	
272.03	527.47	72.44	57.99
208.05	380.13	83.13	60.90
195.70	346.40	128.66	86.20
341.00	365.08	121.19	46.61
83.85	131.37	99.71	81.91
283.90	379.60	86.50	38.51
199.48	242.88	130.77	73.66
188.00	247.80	137.57	60.47
5,903.92	9,073.43	96.63	54.97

ANSWERS TO SAFETY QUIZ ON PAGE 20

1. Flagman not watching approaching traffic.
2. "Men working" sign improperly placed.
3. Truck parked partly on pavement.
4. Failure to remove rocks from traveled portion of roadway.
5. Backing without watching.
6. Greasing bulldozer track while in motion.
7. Riding on top of vehicle.
8. Standing on running board.
9. Getting off moving vehicle.
10. Using dragline under power lines.
11. Breaking rock with goggles shoved up.
12. Broken handle on pick.
13. Not looking when crossing road.
14. Using bushhook too close to other employees.
15. Dropping one end of board without signalling other employee.
16. Working on roadway without watching passing vehicles.
17. Nails in board on ground.
18. Safety sign not on tar kettle.
19. Red flag not displayed on sign and equipment.
20. Lifting with back instead of legs.

SCORE

90 or higher – You will live to a ripe old age.
80 to 90 – You may not be around to collect your retirement.
70 to 80 – Poor insurance risk.
Below 70 – Brother, you ain't long for this world.



"Boy, the kinda job you've got would kill me in nothing flat!"

THE SIGNING IS RIGHT, THE PICTURE LIES . . .

On page 30 of C&M Number 23, the obstruction marker at end of bridge in the picture at the bottom of the page appears on the left instead of the right because the negative was turned over, or flopped, when the print was made.

Personnel Turnover

H.L. Arno, Director of Personnel

1. Administration, Austin: Herbert Eldridge, Chief Engineer of Planning, resigned May 1, 1953.
2. District 17, County Residency, Bryan, to District Headquarters, Bryan: O. L. Crain, Senior Resident Engineer, appointed as Assistant District Engineer May 1, 1953.
3. District 17, County Residency, Hearne, to District Headquarters, Bryan: C. B. Thames, Senior Resident Engineer, appointed as Assistant District Engineer May 1, 1953.
4. District 17, District Headquarters, Bryan: D. L. Hogan changed from District Maintenance Engineer to Senior Resident Engineer May 1, 1953.
5. District 8, County Residency, Baird, to County Residency, Abilene: R. W. Domann, Senior Resident Engineer, transferred May 1, 1953.
6. District 8, County Residency, Baird, to County Residency, Abilene: E. L. Harris, Senior Resident Engineer, transferred May 1, 1953.
7. District 8, County Residency, Anson, to County Residency, Abilene: B. C. Rogers Sr., Senior Resident Engineer, transferred May 1, 1953.
8. Fort Worth Urban Project: Tom Frazier Jr., changed from Resident Engineer to Senior Resident Engineer May 1, 1953.
9. District 20, County Residency, Silsbee: A. E. Johnson, Senior Resident Engineer, resigned March 23, 1953.

* * *

TWENTY-FIVE AND THIRTY YEAR AWARD WINNERS

Front row: Mrs. May Outlaw, Leon S. Partridge, H.R. Price, R.L. Schmidt, James W. Smith, W. Comer Thomas, Ernesto Villarreal, J.D. Willson, and James M. York.
Second row: W.F. Herd, Otha Jones, Jess D. Landry, A.H. Malone, B.B. Mazac, Narciso Melendez, Chester McDowell, R.A. McMullin, and Charlie E. Osburn.
Third row: Al L. Chollar, F.M. Davis, Garland A. Deal, Douglas R. Doshier, Tom Ellis, Sebron Foster, R. Erle Hall, John V. Hasley, and John L. Heim Jr.
Back row: John E. Blair, Fagan B. Mason, Palmer Massey, Ira R. Titus, Charlie C. Ard, Joel A. Bell, Joe Bruton, Paul D. Bushong, and Virgil M. Campbell.

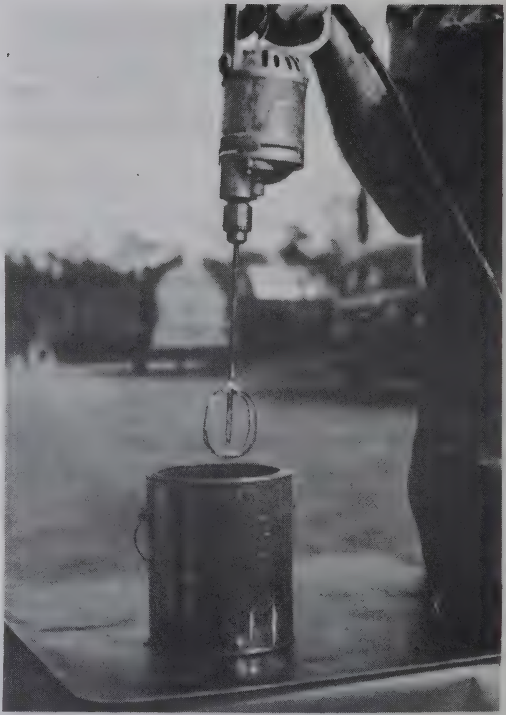
Paint Mixing

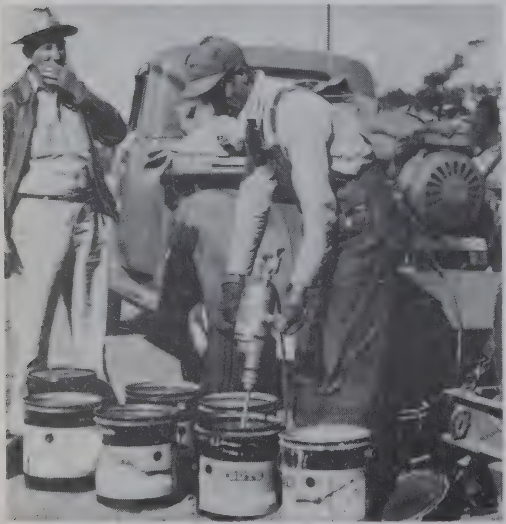
Charles J. Pilant, Special Foreman
District 19

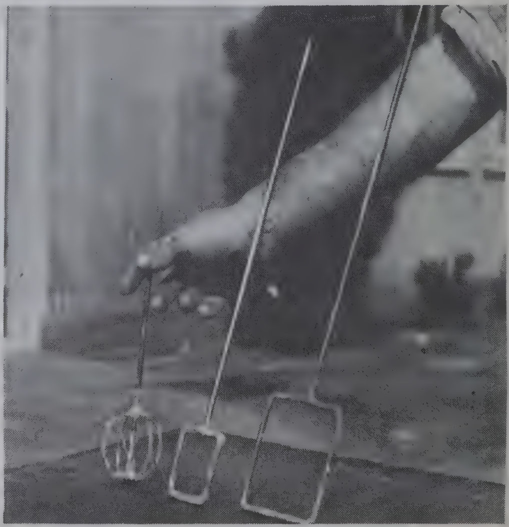
Paint mixing in District 19 has been simplified by the use of electric drills converted to stirrers. This practice was started several years back when paint stayed in our warehouse longer than it does today, thereby making mixing more difficult.

With the use of a half-inch drill and the attachments shown in the picture below, a five-gallon can of paint can be mixed quickly and thoroughly. We also use a one-quarter-inch drill and a small attachment for mixing in one-gallon cans. We discovered that, with the smaller attachment, mixing was much more thorough if it had four blades rather than the two that we use for mixing in larger cans.

The mixing of traffic paint in the field is done in the same manner, by use of a gasoline-driven generator, a half-inch drill, and a larger attachment.







Bridge Painting - District 14

J.M. Owens, Assistant District Engineer
and

Don L. Hook, Senior Resident Engineer
District 14

A contract for the cleaning and painting of six bridges at various locations in District 14 was awarded to R. W. Foster, Georgetown, Texas, on April 10, 1953. The contract provides that paint shall be furnished the contractor free of cost at District 14 Headquarters by the Department. Payment is made to the contractor for all labor, tools, and equipment necessary to clean and paint the bridges at a lump sum price for each bridge. The tonnage of structural steel in each bridge was shown on the plans to aid the contractor in preparing his bid.

The contract provides for placing one coat of GR-3 paint on all structural steel except hand railing. After a period of not less than 30 days has elapsed, a coat of AP-1 paint is to be applied to all structural steel, including hand railing.

The contractor began work on this project April 13, 1953, starting on the Montopolis Bridge over the Colorado River on U.S. 183 in the eastern section of Austin. This structure handles all traffic from Austin to Bergstrom Field, including U.S. 183 South and Highway 71 East, in addition to local traffic from First, Fifth, and Seventh Streets in Austin.

A twelve hour traffic count made by the City of Austin on March 25, 1952, from 7 A.M. to 7 P.M. at the intersection of U.S. 183 with a city street adjacent to the south end of the bridge showed a total of 11,539 vehicles entering the intersection during the twelve-hour period, with a peak load of 1,553 vehicles from 7 A.M. to 8 A.M., and 1,743 vehicles from 5 P.M. to 6 P.M. The minimum count was 606 vehicles from 11 A.M. to 12 Noon, and 625 vehicles from 1 P.M. to 2 P.M. It is quite likely that the traffic load over this structure has increased since that time.

The contractor originally contemplated safeguarding traffic from falling and wind-blown paint by spreading mats between the painters and the traffic. This method was soon found to be ineffective, and we received numerous complaints. The paint is being applied by mechanical spray guns. After a few hours of operation, work was suspended pending development of a better method of safeguarding vehicles from the paint.

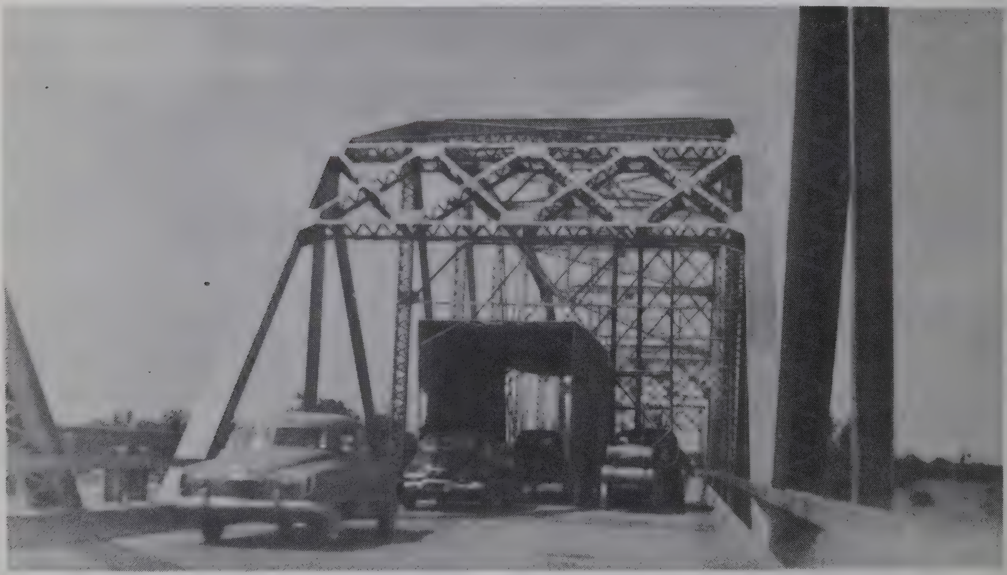
The contractor's superintendent, R. J. Ives, suggested the use of a tunnel for protecting traffic from the paint, and this method was approved by our engineers. The tunnel was constructed and placed in service by the contractor with excellent results.

The tunnel consists of a framework of two-inch welded pipe covered with G. I. surplus signal cloth. The entire unit, 50 feet in length, is in two sections of 25 feet each for easier handling, and is joined together, end to end, when necessary. The tunnel has a vertical clearance of fourteen feet, six inches, and a horizontal clearance of twelve feet. Each unit is mounted on four pneumatic-tired wheels, which makes for easier movement. The tunnel is secured in position by being tied to the bridge at each end of the tunnel.

Traffic is routed in alternate directions through the tunnel in a single line by flagmen stationed at a sufficient distance away from the work to control vehicles and direct the traffic. When necessary, other flagmen are used at the tunnel ends to control traffic passing through the tunnel.

The scaffold or bridge on which the painters work is mounted on an elevator-type platform approximately three feet by six feet in area. The platform is supported by four pipe legs telescoped inside a frame of larger pipe and is activated by means of a cable and winch attached to a center support of the platform. The cable, winch, and platform supports are mounted on a truck bed and powered by the truck motor. The scaffold, by means of the cable-lift elevator, may be used for heights varying between thirteen feet and twenty-five feet above the bridge floor. An auxiliary platform four feet in height is mounted on the scaffold platform for use when required to obtain additional height. The scaffold and hoist are shown in the photographs.

Another interesting device used on this contract is a gadget for measuring paint film thickness. This gadget was constructed in the shop at Camp Hubbard and is made from one-half-inch stainless steel plate in the form of a three-inch circle with a one-half-inch roller bearing center. The extreme outsides of the one-half-inch plate is a true circle with the center portion depressed and graduated from 0 mils to 10 mils. The film thickness is measured by placing the 10-mil mark on the freshly painted metal and rolling it toward the 0-mil mark. At the point where the depressed center portion of the perimeter begins to pick up paint, the film thickness is read. The photographs show the method of using the device. The two marks above and slightly to the right in the photograph show where the film thickness has been measured.



Tunnel for traffic protection, made of welded pipe frame covered with canvas.

Auxiliary platform used in painting top chord members and wind bracing.

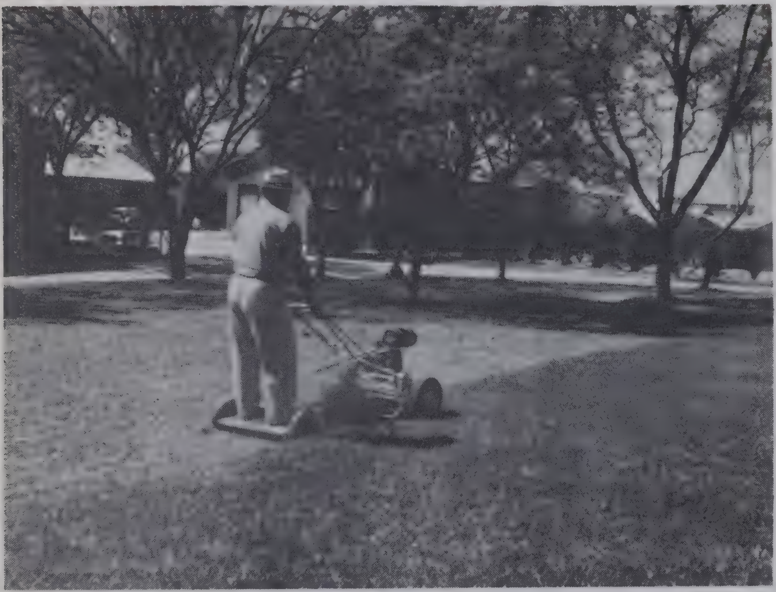
Painters' platform mounted on truck bed and operated by winch cable.

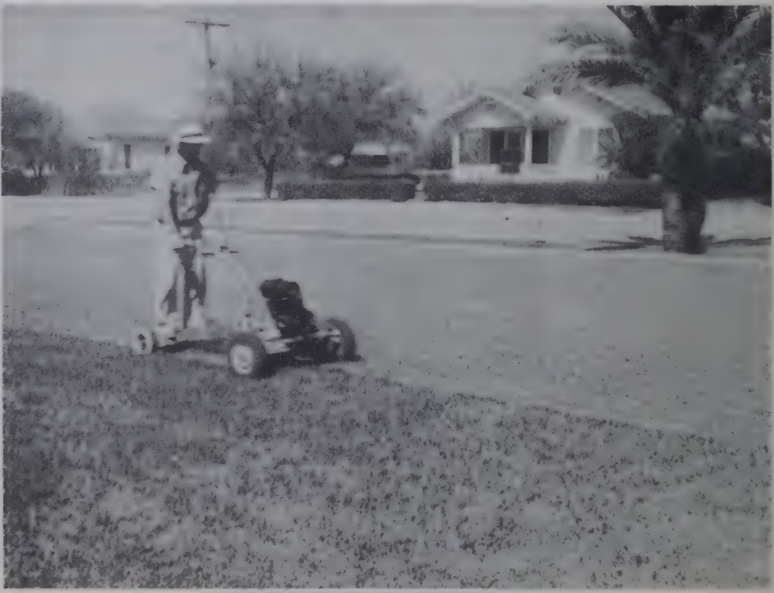
Wet paint film-thickness gauge used to control the application of paint.

Lazy? No. Just Ingenious

Submitted by M.B. Hodges, District Engineer
District 22

Arturo Padilla, semi-skilled laborer in District 22, is not in the least lazy, but by the addition of a portion of an old striping machine on the rear end of the power mower he is able to mow the lawn in about half the time needed when he had to walk and follow it. We estimate the speed with the attachment is about twice as fast as walking.



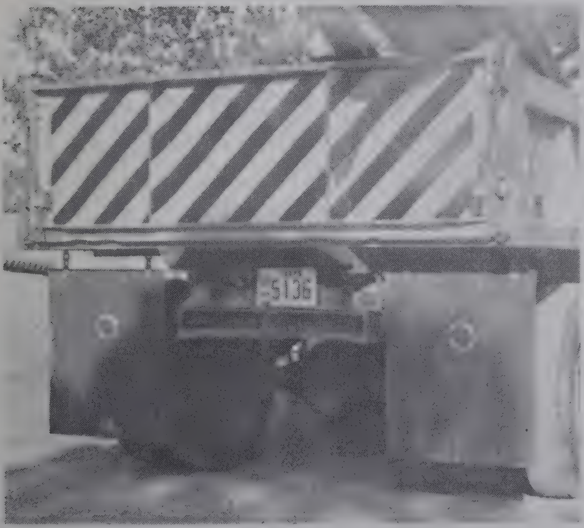


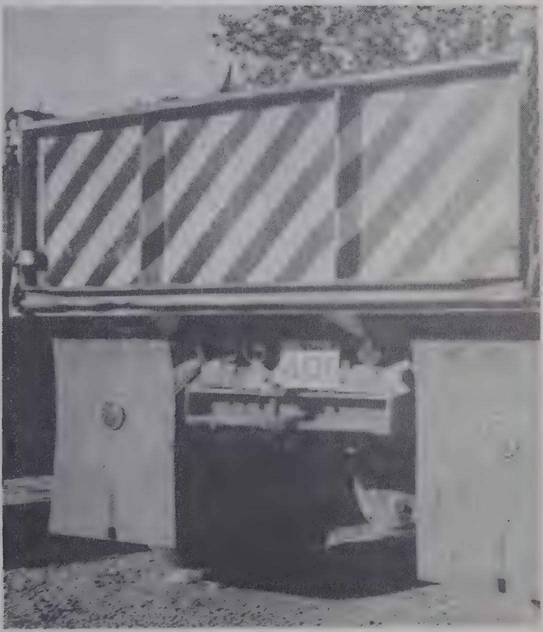
Striping Tail Gates

Frank W. Cawthon, District Engineer
District 18

Due to the heavy volume of traffic in this District, we paint diagonal black stripes on the yellow tail gates of our trucks in an effort to increase safety by greater visibility. These stripes have to be repainted quite often in order to serve their purpose. C. A. James, our Maintenance Foreman at Ennis and one of our district reporters for the bulletin, has reported that one of his men, C. H. Kopec, who has been with the Department only four months, suggested that the tail gates be coated with clear varnish after the black and yellow stripes are repainted on the tail gates of the trucks. This idea was tried and the tail gates coated with clear varnish hold their paint jobs much better than those not coated.

The tail gates of the two trucks in the photographs were painted the same day. A coat of clear varnish was applied to tail gate of the top truck but not to the bottom truck. The photographs were made six weeks after the tail gates were painted.





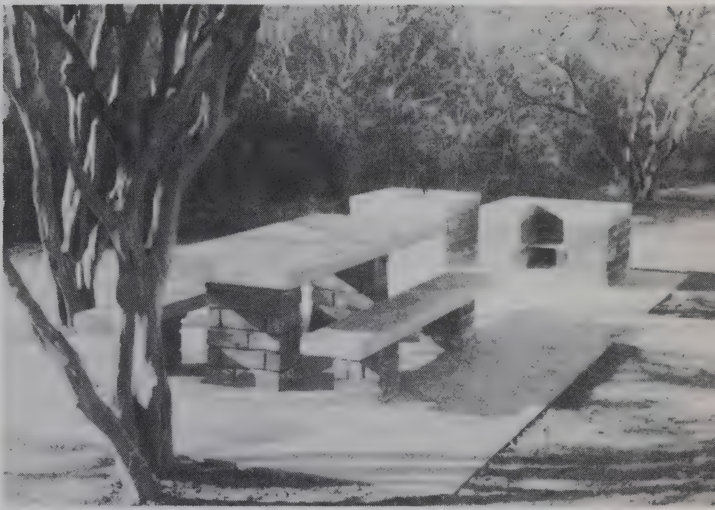
Materials Used in Roadside Parks

All kinds of materials go into roadside parks. Districts 4, 16, and 23 offer the following suggestions. What material are you utilizing in your district?

Paving brick used in constructing fixtures under large live oak. State Highway 6, thirteen miles south of Breckenridge.

Incinerator, fireplace and retaining wall constructed of paving brick. U.S. 80, four miles west of Eastland.

A dual unit park constructed on highway right of way. U.S. 281, twelve miles south of Alice.



Handmade brick used in constructing standard park fixtures. Garbage well and fireplace conveniently located on concrete slab.

A dual arbor park located on divided lane highway. Historical marker is erected in the park, which is constructed on highway right of way on State Highway 117, three miles north of Borger.

Piers of arbor and curbing constructed of paving brick. Rock wool bats are used as roofing. Standard park fixtures are conveniently placed on concrete slab.

Trinity River Bridge at Romayor

E. D. Parmer, Assistant District Engineer
District 20

Below are some "before" and "after" photographs of a project on the Trinity River Bridge on State Highway 105T in Liberty County for increasing the vertical clearance.

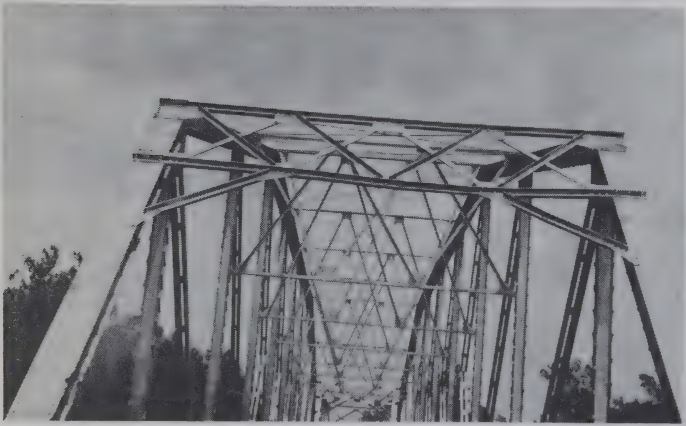
This bridge, fabricated by Virginia Bridge Company, was completed in 1924 or 1925 for Liberty County before this road was taken over for state maintenance.

The bridge, which is 440 feet in length, consists of a 200-foot through truss span flanked at each end by a 120-foot through truss. The roadway width is approximately sixteen feet. As orginally constructed, the vertical clearance in the center of the end portals was fourteen feet but was further impaired on each side by diagonal bracing.

Recently, the vertical clearance was increased to seventeen feet on this structure by revising the portal and sway bracing.

This improvement was worked out with the assistance and cooperation of A. B. Staubach and P. V. Pennybacker of D-5.

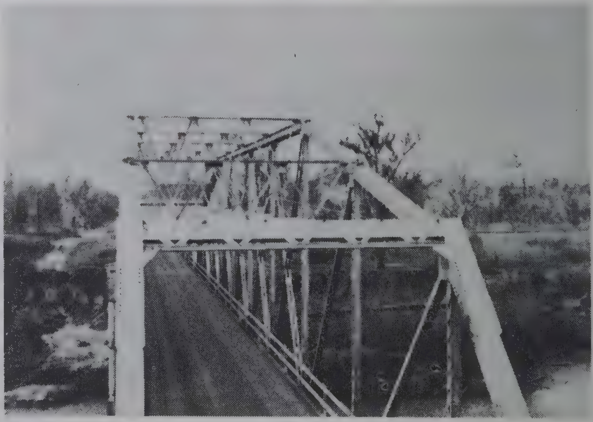
The work was done with our own forces under the supervision of our Equipment Supervisor, O. A. Keith.



Before: 200-foot truss portal, (sway bracing in background).

Before: Looking west through bridge.

After: Looking east.



After: 200-foot truss portal.

"Comments From the Traveling Public"
OVER THE HIGHWAYS

I wish to bring to your attention a deplorable method of road repairing which I encountered. It resulted not only in great personal inconvenience, but also in unnecessary, permanent damage to my car and tires.

The work was in progress on Highway --- , between --- and --- , Texas, on April 30, 1953. I was driving south and had no warning whatsoever that the road was being freshly tarred. The shoulders of the road, which dropped sharply, were tarred to the very edge, the car skidded in the slippery tar, resulting in very dangerous driving conditions.

Surely you will agree that a safer procedure could have been followed. Detour routes should have been established or just half the road tarred, allowing one way traffic. Or at least, a warning, "fresh tar ahead" should have been posted, allowing the motorist to choose another road.

After driving over this stretch of road, my car had a solid, thick coating of tar on both sides, and you can imagine what my new white side wall tires looked like. It was necessary for me to take the car to a garage to have the tar removed. There was so much of it that in the removal process the finish on the car was ruined. My white wall tires, only a few days old, are permanently damaged. The garage informed me that it is utterly impossible to restore the white finish on them.

I feel that I have a justifiable complaint that the Highway Department inflicted unnecessary hardship and expense upon me.

(Signed)

The cooperation of the Highway Department in handling the Newton County flood situation was extremely valuable in preventing further loss of property and in protecting the lives of the people in that area.

The forces of the Highway Department were sent in promptly and in numbers.

Our congratulations again on a very effective operation.

William L. McGill
State Coordinator
Division of Defense and Disaster Relief
Executive Department
Austin, Texas

On September 9, north of --- , I encountered a road repair project on which the entire width of the pike was being treated with tar. There was no way around it, or of even backing up. I simply had to go over about a mile of pike on which fresh tar had been sprayed.

At the end of the tar, I was handed a nice card of apology, saying it was cheaper to do it in that manner. It may be a bit cheaper to spray the entire width of the highway before laying the black-top, but it is expensive for those who must go over it. It cost me $4 to get the tar removed from my car, and I got it done more cheaply than some at that.

I can't think that enough savings are effected to the Highway Department, by not treating one side of the highway at a time, to justify the inconvenience and expense to those who must travel it. A friend of mine paid $5 to get his car cleaned, and another paid $10. You will probably hear from both of them.

(Signed)

I want to tell you how much I appreciated the help which two of your men gave me last week when I had a tire blow out. It was this side of Premont, and I was all alone. I certainly would have had a difficult time as my jack wouldn't even work. The two men were in the truck, and they came back to help me. They wouldn't let me pay them so I wish you would thank them again from me.

(Signed)

Inclosed find $5 to pay for one stop sign I knocked down in the month of August on Highway 760 south of town.

Don't know who to give it to, so am sending it to you.

I would like for you to know the courteous treatment I and my little girl and mother were accorded by two of your employees, Mr. J. E. Roberts and Mr. Earl Hardee, of your Maintenance Division at Bastrop, last Saturday afternoon.

We were on our way to Houston when just the other side of Bastrop a tire on the car went flat. We had not been stopped more than five minutes when Mr. Roberts and Mr. Hardee drove up and offered their assistance. They changed the tire for us and we were very grateful to them for their help and their extreme courtesy. I think it is men like these gentlemen who exemplify the fine type of personnel employed by our State Highway Department.

(Signed)